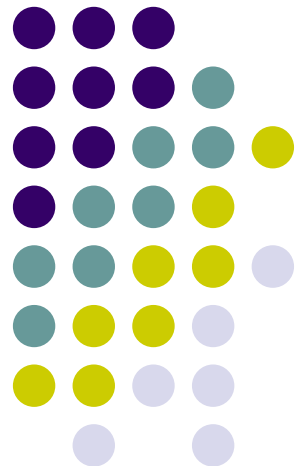
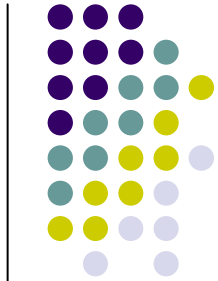
Pervasive Usability

Legal Requirements and Implications of Section 508

The Policy of Accessibility



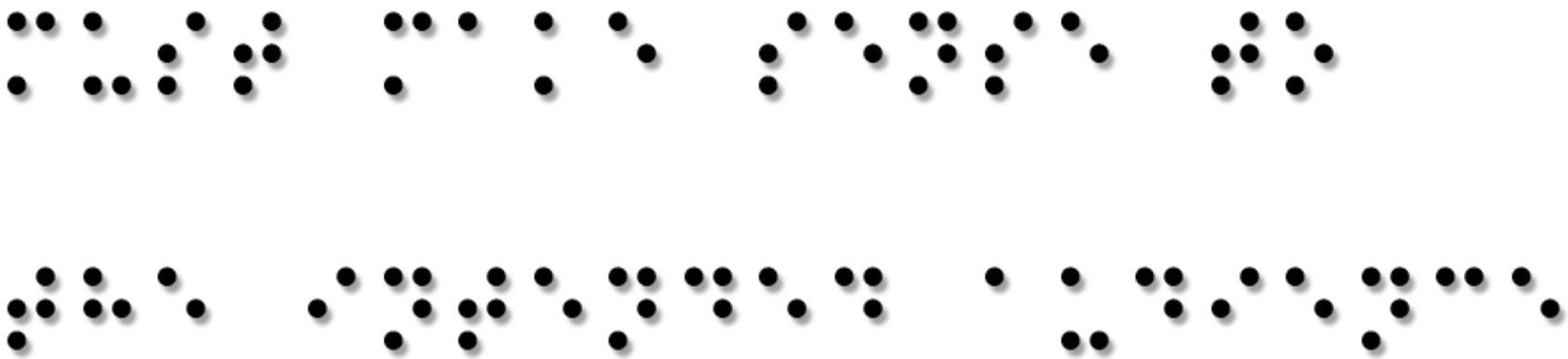
Presentation Goals



- Context: Pervasive nature of disability
- Knowledge: Systems to address challenges
  - Legislation
    - ADA, Telecommunications Act
    - Section 508 [electronic and information technology]
  - Solutions
    - Past [*ad hoc*]
    - Present [compliance driven]
    - Future [designed for usability]
  - Research / Reference (technical, other…)

Context

- Information:



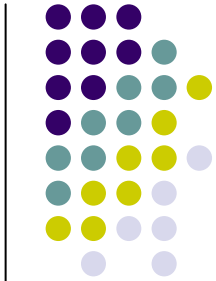
Context

- Information:

Must make sense to

the intended audience

Audiences and Environments



- The Built Environment
  - Hospitals
  - Public buildings
  - Private homes

- The Information Environment {broadcast vs. 1-to-1}
  - Oral traditions
  - Print traditions
  - Electronic information

Original design | Clever fix?

Context: hotel (Hyatt)

Accessibility
ADA Devices

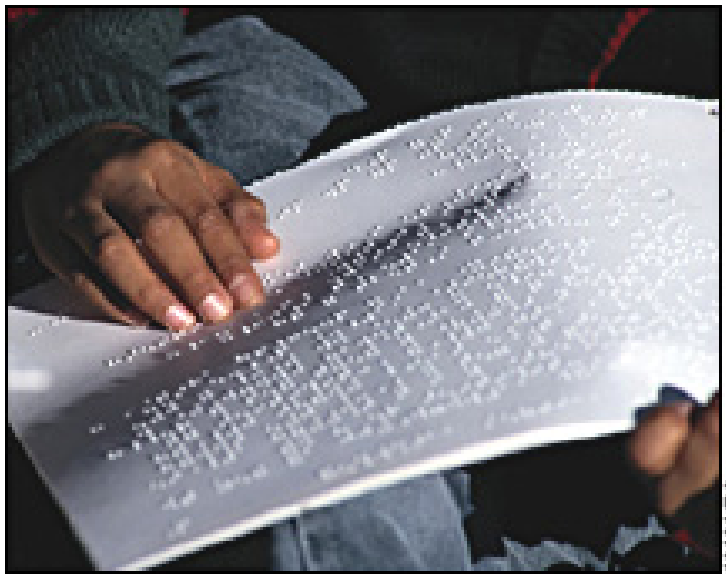
The staff at Hyatt Regency Atlanta is committed to ensuring that we meet and exceed all of the requirements for the Americans with Disabilities Act. Our staff is trained to accommodate guests with special needs, so that all of our guests, including those with disabilities, are able to have an enjoyable and safe stay. At Hyatt Regency Atlanta we want to make sure all our guests are able to take advantage of every activity the hotel has to offer.

The following facilities are available for persons with disabilities:

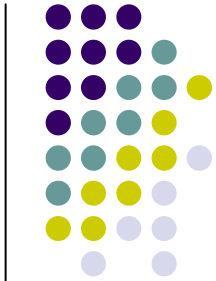
Audio-visual smoke detectors
Braille symbols in elevators
Restaurant and room service menus in Braille
Wheelchair-accessible doors
Wheelchair-accessible peepholes
Wheelchair-accessible climate controls
The Fitness Center is wheelchair accessible
Public rest rooms are wheelchair accessible with the exception of Polaris
Portable bathtub benches are available for all room types
Portable bathtub grab rails are available for all room types
Wheelchair-accessible sink/vanity and towel racks
Wheelchair-accessible closet poles
Roll-in showers
Close-captioned television decoders
Telecommunications device for the deaf (TDD)
Telephone alerting device
Front door alerting device
Vibrating alarm clock
Portable audio-visual smoke detector
Amplifying telephone handset
Lamp signals
Raised commode seats

In addition, the hotel's front entrance, front desk and concierge desk are all wheelchair accessible.

Access: conference proceedings



Awareness Techniques



- Spend the day in a wheel chair
- Turn off images and CSS in browser
- Talk with PwDs
- Think about advantages of curb-cuts
- … electronic curb-cuts

- …read a syntax-check report of HTML errors

Intersection: Awareness & Law

As we move to self-service economy,
what happens to PwD?

- Gas station
- Update Personnel data in Database
- Financial transactions
  - Use of eCommerce [Amazon, Web Van]
  - ATM Machine

Built / Info. Environments

- Bank of America has equipped its ATM machines for speech (headphone) output.

Built / Info. Environments

- **Bank of America Works for Financial Independence for People with Disabilities**

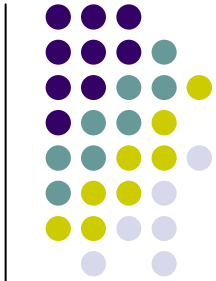
- "Financial independence isn't always about money," says Annette Kellermann of Bank of America. "Sometimes it's about access."
- Talking ATM allows Bank of America to easily access funds. With that in mind, three years ago Bank of America integrated its various efforts for customers with disabilities into one program. The Bank of America Accessible Banking™ program, envisioned as a holistic approach to providing service to people with disabilities, focuses the bank's efforts as never before.

Three Accessibility Laws

What, Why, How, and Exceptions
Specifications vs. Performance Standard

- ADA [1990]
  - “Reasonable Accommodation”
- Telecommunications Act [1998]
  - “Readily Achievable”
- Section 508 [2001]
  - Unless “Undue Burden”

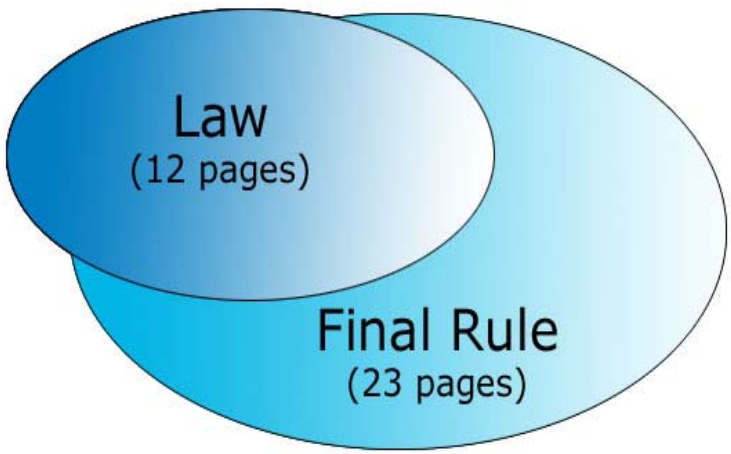
Legislator's notes



- Membership
  - Addition of Private Industry Representation
  - Non-addition of Government Personnel
- Peanut Gallery
  - NIST
  - GSA
  - DoJ

Section 508 – simple text

- Two files contain law
  - Primary Law
    - http://section508.gov/index.cfm?FuseAction=Content&ID=12
  - Final Rule
    - http://www.access-board.gov/sec508/508standards.htm

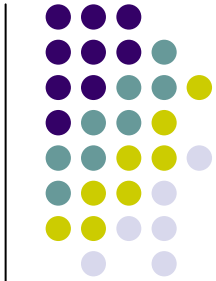


Application Process

- Enforcement by Purchase process

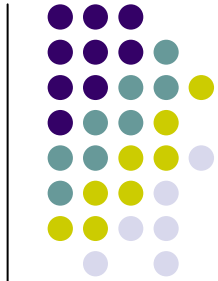
…when Federal agencies develop, procure, maintain, or use electronic and information technology, Federal employees with disabilities have access to and use of information and data that is comparable to the access and use [by able bodied people]…

Hierarchy of Law



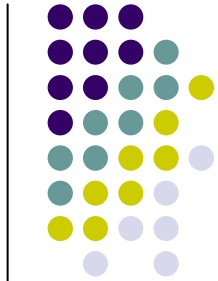
- Includes 6 classes of technology
  - Software applications and operating systems.
  - Web-based intranet and internet information and applications.
  - Telecommunications products.
  - Video and multimedia products.
  - Self contained, closed products.
  - Desktop and portable computers.
- 7th Provision is
  - Functional performance criteria.

Agency Policies



- Accessibility as core component of agency enterprise architecture
  - Full life cycle
    - Purchase
    - Development
    - Complex
- Content providers
  - Audiences [internal | external]
  - Tools and Techniques

Authoring Guidelines

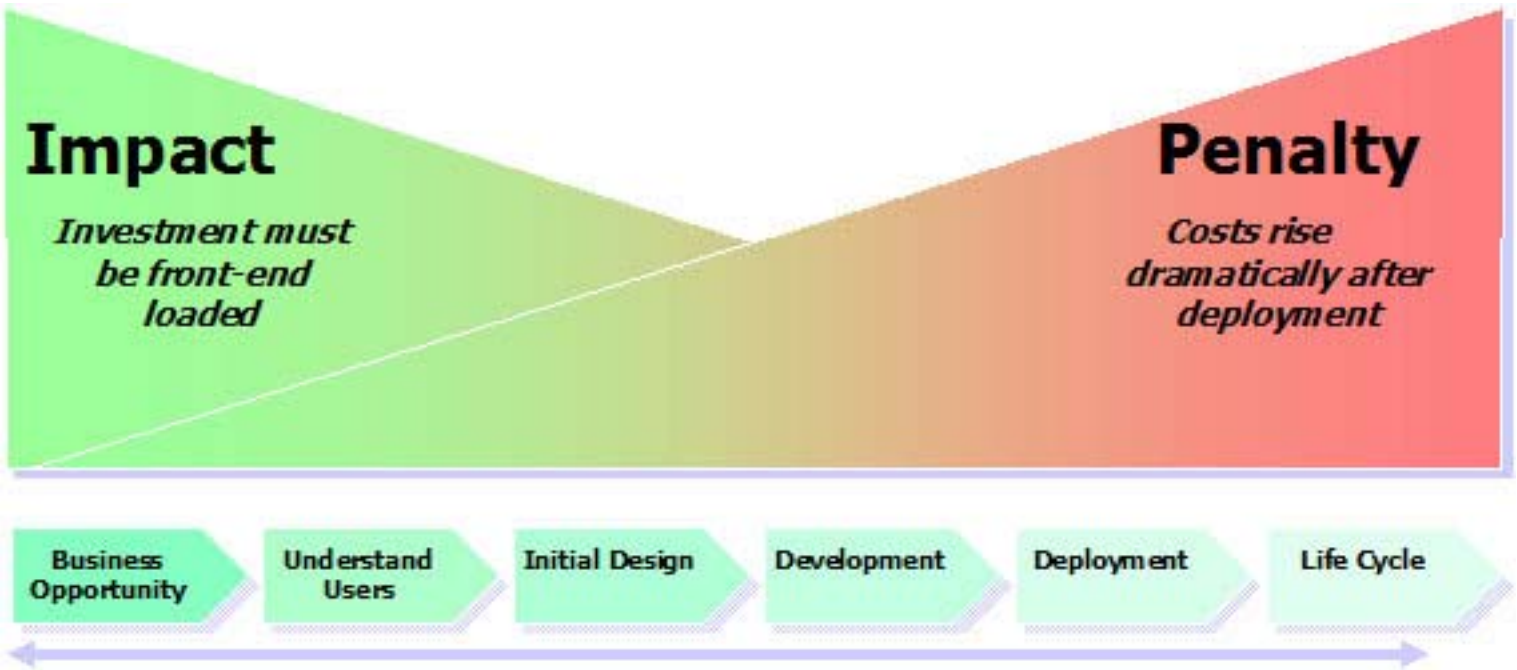


Purchase vs. Use

- Tools
  - Structure
    - Navigation schemes, Tables, Images, Columns
  - Graphic visualizations
  - Multimedia – (Think “Education”)
- Multimodal – HTML / PDF / Word / Excel / PDA

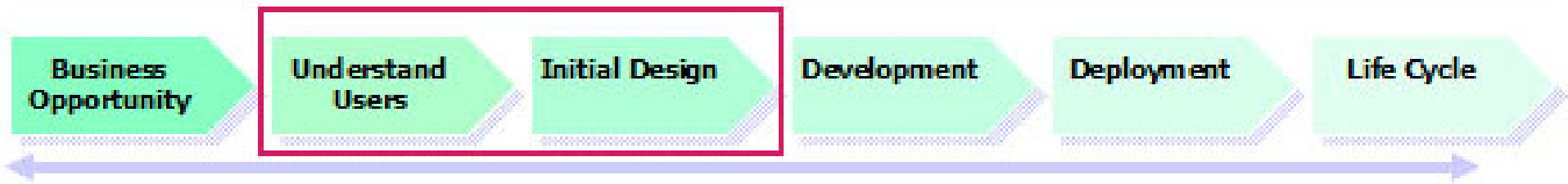
- Authoring for PwD
  - Tone / Voice / Sensitivity

Life Cycle Impact



Life Cycle - Start

- “Begin with the end in mind…”
  - Persona of PwD
  - Scenarios of Use by PwD



Life Cycle - Implement

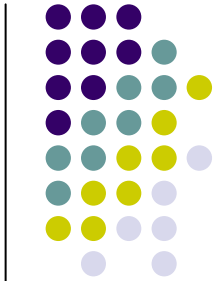
- “Useable vs. Useful…”
  - Syntax compliance [compile]
  - Semantic coherence [use and observe]

Personas

Personas are used in industry to help focus on user needs in the product development process by bringing statistical and other user data to life. Personas are endowed with backgrounds and personalities, as well as functional characteristics that represent the diversity of customers and potential customers.

- How Does One Create a Set of User Profiles & Scenarios?
  - Is there a Standard Set of Profiles for Disability Folks?
  - Do People with Disabilities Require Unique Use Cases?
  - How Do You Evaluate Success?

Personas



- Microsoft
  - Hip Hop Folk (mostly young)
  - http://advertising.msn.com/home/MSNPersonas.asp

- Georgia Tech - Rehabilitation Engineering Research Center on Mobile Wireless Technology for People with Disabilities
  - An effort for a new perspective
  - http://www.wirelessrerc.gatech.edu/projects/research/personas.html

The personas of cell **phone users with disabilities** presented here offer a glimpse into the lives behind the data, exploring the reasons why cell phones are as widely used among persons with disabilities as among the general population, despite the cost.

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msn personas

We try to understand an audience through numbers, charts and graphs, but often times we lose sight of the people who represent these statistics. The MSN audience is comprised of a broad range of users at different stages in their life, who use MSN in their own unique way. To help better define the people behind the numbers, MSN has created personas for some key audience segments.

Based on a custom study done by Neilson/Netratings and Comscore, MSN has compiled information about the following groups of people to show a day in each of their lives. We have provided some top line information on each persona here, but for more information, please contact your MSN Sales Representative.

Meet Tyler
Age 8-13, Tyler is best known as a "tween". He has grown up with the Internet and is just beginning to experiment. Click here to see when Tyler is online and what he is doing.

Meet Amanda
Age 14-17, Amanda is at the pivotal point in her life where she is beginning to define her brand affinities. She is savvy and sees the Internet as an advanced communications medium for her and her friends. Click here to see when Amanda is online and what she is doing.

Meet Michael
Age 18-35, Michael is the single, young techie. He represents the last of the historical power users of the Internet, but is still one of the leaders in adopting new technology. Click here to see what Michael is doing online.

Meet Jessica
Age 18-34, Jessica is the single professional who is already learning about the work/life balance and how the Internet can help. She voraciously consumes content on the Internet - click here to learn what she is doing online.

Meet Marie
Age 33-44, Marie is a married mom trying to juggle the demands of her family, along with handling her part time business. She uses the Internet to get it all done, quickly and easily. Take a look at when Marie is online and what she is doing.

Meet Carlos
Age 35-49, Carlos is married without any children and spends his time online for both business and personal use. Checking financials, sports scores, and entertainment are just a few of the places he goes. Click here to see when Carlos is going online and what he doing.

Cell Phone User Personas :: Danae

Danae is African-American, born in 1975 – "The year Tiger Woods was born – which explains why I love golf", she says. Danae is a native of the Maryland suburbs near Washington, DC. She has one brother, and her parents live in southern Maryland. Danae has a fiancée, who lives in DC. She works in the Human Resources department of a large telecom corporation.

Danae has a significant sensorineural hearing loss, that began in her early twenties as a result of nerve damage. She can only feel vibrations and hear very loud noises without her bilateral hearing aids – she's now on her 3rd pair. Having finally located a cell phone that is compatible with her hearing aids (without the use of a

Future / Reference

- URL's
  - http://section508.gov
  - http://www.access-board.gov
- Tools (beyond Bobby)
  - WatchFire (access as part of evaluation)
  - aDesigner (visualize lack of vision) [IBM]
- OS developments
  - Microsoft / Unix / Linux / Apple
  - (aware of security vs. accessibility)
- Conferences / Intergovernmental connections
  - IDEAS 2005: the Interagency Disability Educational Awareness Showcase

Some Standards / Resources

- World Wide Web Consortium (W3C)
  - http://www.w3.org/
- Web Content Accessibility Guidelines
  - http://www.w3.org/WAI/GL/
- ITTATC [Project at Georgia Tech]
  - http://www.ittatc.org/
- Accessibility in the User-Centered Design Process
  - http://www.ittatc.org/technical/access-ucd/index.cfm

Software: **ISO 9241-171**

- **Status:**
  - Scheduled for publication in 2006 as joint ISO and CEN standard
- **Current structure & content:**
  - **1. Scope**…of the standard
  - **2. Normative references** (other standards)
  - **3. Terms and definitions**
  - **4. Benefits of implementing accessibility**
  - **5. Principles of accessible design**….8 principles
  - **6. Variations in user characteristics**

Software: **ISO 9241-171** (2)

- **Current structure & content:**
  - **7. How to use this standard**…
    - Two Impact categories
      - Primary = Requirements
      - Secondary = Recommendations
    - Two Implementation responsibilities
      - Operating system
      - Application
  - 8. “Ghost clause”! …
  - **9. General guidelines**…currently 24 guidelines
  - **10. Assistive technologies**….currently 9 guidelines for the enablement of assistive technologies

Software: **ISO 9241-171** (3)

- **Current structure & content:**
  - **11. Input guidelines**…physical (keyboard, pointing devices, audio, tactile, visual) and logical (controls, customisation, saving user preferences)…currently 44 guidelines
  - **12. Output guidelines**…physical (data representation, visual, windows, text, colour, animations, audio, tactile) and logical (error notification, online documentation)…currently 89 guidelines.
  - **13. Interaction guidelines**….menus, command languages, form filling, Q&A, natural language…currently 7 guidelines
  - **14. Multimodal interface guidelines**…currently 7 guidelines
  - **Annex A…Issues regarding activity limitations**
  - **Annex B…Principles of Universal Design**
  - **Bibliography**

Long-term Goal

Begin with the end in mind:

- Integration of all aspects of accessibility into the creation, development, and dissemination of information.
  - Just as the control and prevention of disease is complex, full accessibility is complex.
  - Accessibility will continue to inform usability.

Questions…

- On-going discussion:

http://aeolian-designs.blogspot.com/